UNITED STATES PATENT AND TRADEMARK OFFICE

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10/576,304	04/19/2006	Junji Sato	L9289.06146	9089

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EXAMINER
MALEK, LEILA

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _16 March 2010_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under _Ex parte Quayle_, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _12-15,17,18,21 and 22_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _12-15,17,18,21 and 22_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _19 April 2006_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This office action is in response to the amendments received on 03/16/2010.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 12-15, 17, 18, 21, and 22 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Perrett et al. (hereafter, referred as Perrett) (US 6,018,275), in view

of Johansson et al. (hereafter, referred as Johansen) (Linearization of Multi-carrier

Power Amplifiers, Vehicular Technology Conference, 1993 IEEE 43rd; 18-20 May 1993,

pages: 684-687.

As to claims 12, 21, and 22, Perrett shows a communication apparatus (see Fig.

4, i.e. a transmitter) comprising a modulation apparatus (see Fig. 4, block 30)

comprising: a modulator (see block 39) that modulates a frequency converted signal

(see the output of block 36) by a first baseband phase signal (see the output of block

31) and generates a modulated signal (see the output of modulator 39); a phase

comparator (see block 33) that finds a phase distortion between a phase of the

modulated signal and a phase of a reference signal; a voltage control oscillator (see

block 34) that generates an oscillation frequency as a modulated output signal, the

oscillation frequency determined by a control signal (i.e. the output of filter 38) indicating

the phase distortion found in the phase comparator; a frequency converter (see block

36) that converts a frequency of the modulated output signal generated in the voltage

control oscillator and generates the frequency converted signal. Perrett discloses all the

subject matters claimed in claims 12, 21, and 22, except for a demodulator that

demodulates the modulated output signal and generates a second a baseband phase

signal; and a compensator that finds a second phase distortion by performing a

subtraction between the first baseband phase signal and the second baseband phase

signal, finds a constant by dividing the second phase distortion by one of a magnitude of

a first frequency change and a magnitude of a phase change between adjacent data,

each magnitude being found based on the first baseband phase signal, finds a third

phase distortion by multiplying the constant and the magnitude of the phase change

between the adjacent data, and compensates the third phase distortion with respect to

the first baseband phase signal. Johansson discloses a transmitter comprising a

modulator and a power amplifier (see Fig. 2). Johansson discloses a demodulator that

demodulates the modulated output signal and generates a second baseband phase

signal (see page 686 left column) and a compensator that finds a second phase

distortion by performing subtraction between the first baseband phase signal (see

subtractors in Fig. 3) and compensates a phase distortion between the first baseband

signal and a second baseband signal with respect to the first baseband signal (see

page 686, left column and page 684). At this point, Examiner would like to call the

attention of the Applicant to the description of limitation: compensating a phase

distortion between the first baseband signal and a second baseband signal based on a

magnitude of a phase change between adjacent data of the first baseband phase signal

and a predetermined constant, in the specification paragraphs 0038, 0043, and in claim

12. It appears that for finding phase distortion between two signals, Applicant calculates

the phase distortion value by subtracting the signals, and then dividing the obtained

phase distortion value from subtraction, by the magnitude of the phase change, and

then multiplying the result by the magnitude of the phase change. A closer examination

of this formula reveals that the phase distortion value is first divided by a number (i.e.

the magnitude of phase change) and then multiplied by the same number. Since these

numbers actually cancel each other out, they do not have any effects on the final result

of the phase distortion. Johansson discloses that the phase distortion value can been

calculated by subtraction of the first signal (see Fig. 3) and the second signal.

Therefore, the apparatus disclosed by Johansson has the same functionality of the

compensator cited by the Applicant in claims 12, 21, and 22. It would have been

obvious to one of ordinary skill in the art at the time of invention to modify Perrett's

teaching as suggested by Johansson to compensate for drifts in power amplifier

nonlinearities caused by temperature changes, DC power variations, load changes (see

page 686).

As to claim 13, Perrett and Johansson disclose all the subject matters claimed in

claim 12, except that the compensator transforms the magnitude of the phase change

into a magnitude of a frequency change. However, since phase and frequency are

related to each other, it would have been obvious to one of ordinary skill in the art at the

time of invention to use the magnitude of the frequency change instead of the

magnitude of the phase change in phase distortion calculations (for instance finding the

phase distortion using the magnitude of the second frequency change), to meet the

requirements of the system.

As to claim 14, Perrett and Johansson do not disclose a storage that stores the

constant obtained by dividing the phase distortion by the magnitude of the frequency

change, however, it would have been clearly recognizable to one of ordinary skill in the

art at the time of invention to use a storage to save any calculated value in the system

for further processing that value. The limitations regarding obtaining the phase distortion

by multiplying the magnitude of the frequency change by the constant has already been

addressed by the Examiner in rejection of claim 12 and 13.

As to claim 15, Perrett and Johansson do not disclose a storage that stores

phase distortion selection information, however, it would have been clearly recognizable

to one of ordinary skill in the art at the time of invention to use a storage to save any

calculated value in the system for further processing that value. Furthermore, it is a

matter of design choice and it would have been obvious to one of ordinary skill in the art

to use a table to save the values to meet the design requirements of the system. The

rest of the limitations cited in claim 15, have already been addressed by the Examiner in

rejection of claim 12.

As to claim 17, Johansson discloses that the demodulator generates the second

baseband signal and demodulates a received signal (see Fig. 3 and page 686).

As to claim 18, Johansson discloses that the modulator modulates a carrier

signal using a first baseband signal (see page 686, left column, lines 1-6) compensated

by the compensator 108 and generates the modulated signal.

Conclusion

3.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to LEILA MALEK whose telephone number is (571)272-

8731. The examiner can normally be reached on 9AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

<div style="margin-left:50%">

Leila Malek
Examiner
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/L. M./
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